CLAIMS

I claim:

5   1.   A device comprising:
         a first I/O bus-interface circuit; and
         an on-the-fly message manipulation circuit
connected to said first I/O bus-interface circuit,
wherein said on-the-fly message manipulation
10   circuit sets on-the-fly a pre-selected sub-unit of
a pre-selected message-unit of a message to a pre-
selected state as said pre-selected message-unit
is passed through said device.

15   2.   The device of Claim 1 wherein on-the-fly
manipulation circuit further comprises:
         a message detector module comprising:
             an input coupled to said first I/O bus-
interface circuit; and
20   a message-detected line, wherein in
         response to information indicative of said
         message on said input, said message detector
         module generates an active signal on said
         message-detected line.
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       3.   The device of Claim 1 wherein said on-the-fly
message manipulation circuit further comprises:
         a message-unit detector module having a
message-unit detected line, wherein said message-
30   unit detector module generates an active signal on
said message-unit detected line upon detecting
said pre-selected message-unit of said message.

       4.   The device of Claim 2 wherein said on-the-fly
35 message manipulation circuit further comprises:

a message-unit detector module having a
message-unit detected line, wherein said message-
unit detector module generates an active signal on
said message-unit detected line upon detecting

5   said pre-selected message-unit of said message.

5.   The device of Claim 4 wherein said on-the-fly
message manipulation circuit further comprises:
a message sub-unit state selection module

10   coupled to said message-detected line and to said
message-unit detected line, wherein said message
sub-unit state selection module sets said pre-
selected sub-unit of said pre-selected message-
unit of said message to said pre-selected state

15   after receiving said active signal on said
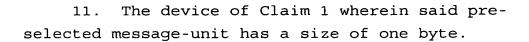message-detected line, and said active signal on
said message-unit detected line.

6.   The device of Claim 1 wherein said message is

20   a SCSI Parallel Protocol Request Message.

7.   The device of Claim 1 wherein said device is a
SCSI expander that does not support adjustable active
filtering.

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8.   The device of Claim 1 wherein said device is a
SCSI expander that supports adjustable active
filtering.

30   9.   The device of Claim 6 wherein said pre-
selected message-unit has a size of one byte.

10.   The device of Claim 9 wherein said pre-
selected sub-unit is a precompensation enable control

35   bit.

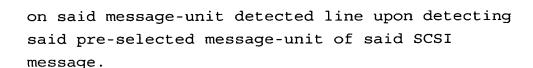11.   The device of Claim 1 wherein said pre-selected message-unit has a size of one byte.
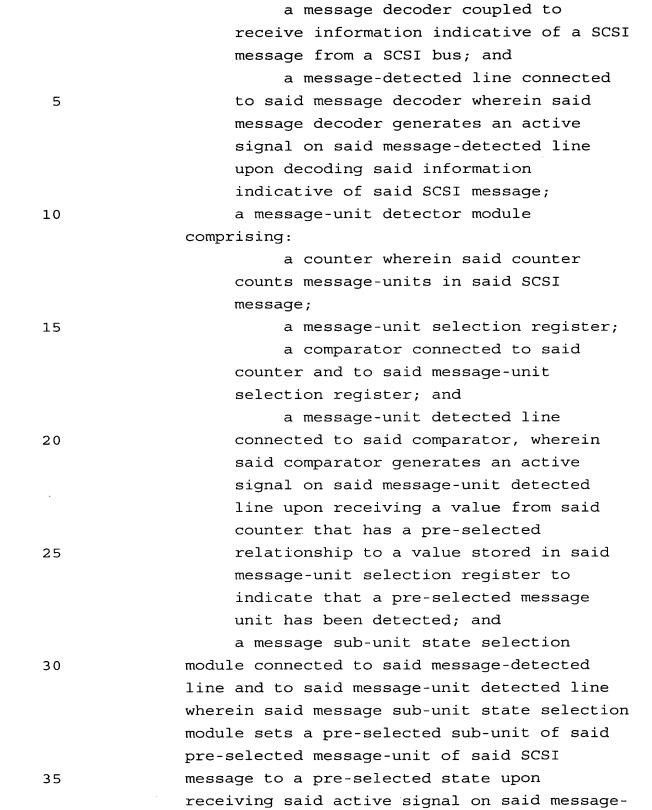
12.   The device of Claim 1 further comprising:
5   a second I/O bus-interface circuit connected to said on-the-fly message manipulation circuit.

13.   A SCSI expander comprising:
          a SCSI message manipulation circuit
10   comprising:
                    a message-detected line;
                    a message-unit detected line; and
                    a message sub-unit state selection
          module connected to said message-detected
15   line and to said message-unit detected line,
          wherein said message sub-unit state selection
          module sets a pre-selected sub-unit of a pre-selected message-unit of a SCSI message to a
          pre-selected state after receiving an active
20   signal on said message-detected line, and an
          active signal on said message-unit detected
          line.

14.   The SCSI expander of Claim 13 wherein said
25   SCSI message manipulation circuit further comprises:
          a message detector module comprising said
          message-detected line wherein in response to
          information indicative of said SCSI message, said
          message detector module generates said active
30   signal on said message-detected line.

15.   The SCSI expander of Claim 13 wherein said
SCSI message manipulation circuit further comprises:
          a message-unit detector module having said
35   message-unit detected line wherein said message-unit detector module generates said active signal

on said message-unit detected line upon detecting
said pre-selected message-unit of said SCSI
message.

5   16.   The SCSI expander of Claim 14 wherein said
SCSI message manipulation circuit further comprises:
          a message-unit detector module having said
message-unit detected line wherein said message-
unit detector module generates said active signal
10   on said message-unit detected line upon detecting
said pre-selected message-unit of said SCSI
message.

          17.   The SCSI expander of Claim 13 wherein said
15   SCSI message is a SCSI Parallel Protocol Request
Message.

          18.   The SCSI expander of Claim 13 wherein said
SCSI expander is a SCSI expander that supports
20   adjustable active filtering.

          19.   The SCSI expander of Claim 13 wherein said
SCSI expander supports adjustable active filtering.

25   20.   The SCSI expander of Claim 17 wherein said
pre-selected message-unit has a size of one byte.

          21.   The SCSI expander of Claim 20 wherein said
pre-selected sub-unit is a precompensation enable
30   control bit.

          22.   A SCSI expander comprising:
          a SCSI message manipulation circuit
comprising:
35   a message detector module comprising:

a message decoder coupled to
receive information indicative of a SCSI
message from a SCSI bus; and

a message-detected line connected
to said message decoder wherein said
message decoder generates an active
signal on said message-detected line
upon decoding said information
indicative of said SCSI message;

a message-unit detector module
comprising:

a counter wherein said counter
counts message-units in said SCSI
message;

a message-unit selection register;

a comparator connected to said
counter and to said message-unit
selection register; and

a message-unit detected line
connected to said comparator, wherein
said comparator generates an active
signal on said message-unit detected
line upon receiving a value from said
counter that has a pre-selected
relationship to a value stored in said
message-unit selection register to
indicate that a pre-selected message
unit has been detected; and

a message sub-unit state selection
module connected to said message-detected
line and to said message-unit detected line
wherein said message sub-unit state selection
module sets a pre-selected sub-unit of said
pre-selected message-unit of said SCSI
message to a pre-selected state upon
receiving said active signal on said message-

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detected line, and said active signal on said
message-unit detected line, as said pre-
selected message-unit passes through said
SCSI expander.

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23.   The SCSI expander of Claim 22 wherein said
message sub-unit state selection module further
comprises:
          an encoder connected to an enable sub-unit
10   bus.

24.   The SCSI expander of Claim 23 wherein said
message sub-unit state selection module further
comprises:
15   a sub-unit selection register connected to
          said encoder.

25.   The SCSI expander of Claim 22 wherein said
message sub-unit state selection module further
20   comprises:
          an output bus having a plurality of output
          lines.

26.   The SCSI expander of Claim 25 wherein said
25   message sub-unit state selection module further
comprises:
          a first plurality of logic gates wherein an
          output terminal of each logic gate of said first
          plurality of logic gates is selectively coupled to
30   and selectively decoupled from a different output
          line of said output bus

27.   The SCSI expander of Claim 26 wherein said
message sub-unit state selection module further
35   comprises:

an input bus having a plurality of input
lines wherein each line in said plurality of input
lines is connected to a first input terminal of a
different logic gate in said first plurality of

5   logic gates.

28.   The SCSI expander of Claim 27 wherein said
message sub-unit state selection module further
comprises:

10   a second plurality of logic gates wherein an
output terminal of each logic gate of said second
plurality of logic gates is connected to a second
input terminal of said different logic gate in
said first plurality of logic gates.

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29.   The SCSI expander of Claim 28 wherein said
message-detected line is connected to a first input
terminal of each logic gate of said second plurality of
logic gates.

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30.   The SCSI expander of Claim 29 wherein said
message-unit detected line is connected to a second
input terminal of each logic gate of said second
plurality of logic gates.

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31.   The SCSI expander of Claim 30 wherein said
message sub-unit state selection module further
comprises:

           an encoder having an enable sub-unit output
30   bus-including a plurality of lines wherein each
line in said enable sub-unit output bus is
connected to a third input terminal of a different
logic gate in said second plurality of logic
gates.

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32. The SCSI expander of Claim 31 wherein said message sub-unit state selection module further comprises:

a sub-unit selection register connected to
5   said encoder.

33. A method for configuring a pre-selected sub-unit of a message on-the-fly comprising:

detecting said message using a hardware
10   circuit;

detecting a pre-selected message-unit of said message using said hardware circuit; and

configuring said pre-selected sub-unit of said pre-selected message-unit of said message to
15   a pre-selected state using said hardware circuit as said pre-selected message-unit is passed through a device including said hardware circuit.

34. The method of Claim 33 wherein said message
20   is a SCSI Parallel Protocol Request message.

35. The method Claim 34 wherein said sub-unit is a bit in said SCSI Parallel Protocol Request message specifying signal conditioning supported by said
25   expander.